REMARKS

The Examiner has rejected claims 1-2, 4-6 and 13-14 under 35 U.S.C. §102(b) as purportedly being anticipated by Wisniewski et al., U.S. Patent No. 5,349,129. The Examiner has further rejected claims 3 and 9-12 as purportedly being unpatentable over Wisniewski et al. in view of Domiteaux, U.S. Pat. No. 5,959,281. Applicant respectfully traverses each of the above-identified bases for rejection.

Applicant respectfully traverses the Examiner's basis for rejection of claims 1-2, 4-6 and 13-14 under 35 U.S.C. §102(b), as purportedly being anticipated by Wisniewski et al. Applicant respectfully submits that the cited Wisniewski et al. reference should be deemed incapable of teaching or suggesting the patentably distinguishing structure and mode of operation of Applicant's invention of independent claims 1 and 13, and that claims 1-2, 4-6 and 13-14 should be deemed patentable thereover.

The Wisniewski et al. reference discloses an electronic sound generating toy which utilizes domino-shaped sound elements in combination with a support track to generate audible sounds or musical notes. The sound elements are placed in indentations on a support track in a selected sequence corresponding to the sequence of musical notes in a song to be played. Each of the sound elements corresponds to a single sound or musical note. When the sound elements are toppled in a domino-type manner, the notes are played in the selected sequence. Each of the sound elements has one or more magnetic elements in its bottom surface. The movement of the magnetic element away from associated Hall Effect sensors in the support track during toppling of the sound elements is used to trigger a decoding circuit. The decoding circuit determines the note pattern and generates the associated sound through an

output speaker. Notably, however, the magnetic elements located in the bottom surface of the sound elements are not interconnected to form a contact pattern, and do not come into electrical contact with any portion of the support track at any point in time during operation of the device.

Applicant respectfully submits that independent claims 1 and 13 patentably distinguish over the Wisniewski et al. reference. Claims 1 and 13 require that each of the objects include a plurality of electrically conductive object contact elements, wherein two or more of such object contact elements are connected to one another within each object to form a contact pattern. In contrast, Wisniewski et al. fails to even remotely teach or suggest electrically conductive contact elements which are interconnected to form a contact pattern. Rather, magnetic elements 32a-e comprise individual magnets which are not linked or interconnected to one another within any of the objects 10 - 14 in any way, shape or form, and which are not disclosed as being electrically conductive (Col. 3, lines 33-41).

Additionally, claims 1 and 13 require at least two of the object contact elements to come into electrical contact with at least two member contact elements when an object is placed into physical contact with the identification member. In contrast, Wisniewski et al. fails to even remotely teach or suggest the formation of an electrical contact between magnetic elements 32a-e and Hall Effect sensors 42, 44, 46, 48 and 50. Rather, the removal of magnetic elements 32a-e from the proximity of Hall Effect sensors 42, 44, 46, 48 and 50 results in a corresponding change in magnitude of the current passing through those sensors. At no time, however, does any current pass between magnetic elements 32a-e and corresponding Hall Effect sensors 42, 44, 46, 48

and 50. Applicant has enclosed a copy of a reference which describes the operation of Hall Effect sensors, explaining how such sensors can be used as magnetically controlled switches—precisely the manner in which Hall Effect sensors 42, 44, 46, 48 and 50 are used in the Wisniewski et al. reference.

To put it simply, the Wisniewski et al. reference teaches utilization of the change in the magnetic field applied on Hall Effect sensors 42, 44, 46, 48 and 50 by the presence and subsequent removal of magnetic elements 32a-e to identify a particular sound element 10, 12, 14. That reference does not teach or suggest the identification of a sound element by passing an electrical current through the sound element—as is the case with Applicant's invention of claims 1 and 13. Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 13, based on Wisniewski et al., are respectfully solicited.

Applicant likewise respectfully traverses the Examiner's basis for rejection of claims 3 and 9-12 under 35 U.S.C. §103(a) as purportedly being unpatentable over Wisniewski et al. in view of Domiteaux. Specifically, Applicant respectfully traverses the Examiner's combination of the respective references. Two or more references may not be combined to support an assertion of obviousness of a claimed invention, absent some teaching or suggestion to their combination. Further, two or more references may not properly be combined if to do so would serve to frustrate the functions, goals or purposes of one or both of the respective references.

Applicant respectfully submits that the cited combination of references should be deemed incapable of teaching or suggesting the patentably distinguishing structure and mode of operation of Applicant's invention of claims 3 and 9-12, and that those claims

should be deemed patentable thereover. Not only is there no suggestion to combine these references, but in fact the cited references teach away from each other, and from Applicant's claimed invention.

The Domiteaux reference teaches an interactive system for reading cards, comprising a card bearing an image and encoded information, and a talking hand-held reader for reading the encoded information on the card and playing back an audible message associated with the image or encoded information. The Domiteaux reference also discloses the card reader having a housing which is shaped to resemble a person, place, aspect or thing associated with the image or encoded information on the card being read. Domiteaux does not disclose the use of an electrical current being transmitted between the card reader and the card.

Moreover, while Domiteaux does suggest that the card reader may take any of various fanciful shapes, including a fish and lure, it neither teaches nor suggests that the cards (objects) intended for use with the card reader may take any such fanciful shapes. To the contrary, Domiteaux clearly teaches that "the cards of the invention are generally planar in construction" (Col. 5, lines 5-6). Accordingly, Domiteaux neither teaches nor suggests a device capable of identifying objects of varying, non-planar shapes.

Applicant respectfully submits that the Examiner's combination of the Wisniewski et al. and Domiteaux references should be deemed inappropriate, in the complete absence of any teaching in either reference to such a combination. Indeed, their combination only serves to frustrate their respective goals and purposes. These references specifically and affirmatively teach away from their combination, and so

cannot be deemed to teach or make obvious the invention of Applicants' claims 3 and 9-12. Combining the cited references in an attempt to reconstruct Applicant's invention, with benefit of the hindsight afforded by Applicant's own disclosure, deviates from the teachings of each of these cited references.

Specifically, Wisniewski et al. discloses an electronic device which utilizes a plurality of sound elements of identical size and shape, each corresponding to a single sound or musical note, which are then "read" in sequence by a decoding circuit including a plurality of Hall Effect sensors associated with each sound element, in order to create a pattern of notes or sounds. The intended mode of operation of the Wisniewski et al. invention requires a plurality of like-sized sound elements to be utilized simultaneously, in order to create a pattern of sounds. A single sound element of the Wisniewski et al. invention will create only a single note or sound—not a pattern of sounds. In contrast, Domiteaux discloses an interactive card reading system, in which an electro-optical card reader is utilized to "read" an audible message (i.e., a pattern of sounds) from a single card, which is not limited to a single shape or size.

There is no teaching or suggestion in the Domiteaux reference of a card reader being capable of reading a plurality of like-sized cards, in order to create a pattern of sounds made up of individual sound elements contained on each card. Such a mode of operation would frustrate the goals and purposes of the Domiteaux reference, which include providing a single component hand-held card reader which is not limited to reading cards having specific sizes and shapes (Col. 2, lines 23-31). Likewise, there is no teaching or suggestion in the Wisniewski et al. reference of a device which is capable of reading a pattern of sounds from a single sound element. Such a mode of

operation would frustrate the goals and purposes of the Wisniewski et al. reference, which include teaching children about musical composition by requiring the child to place the removable sound elements in the proper sequence to generate a song (Col. 2, lines 9-18). Indeed, combining the two references would frustrate the goals and purposes of both. Accordingly, Applicant respectfully traverses the Examiner's combination of these references.

Notwithstanding the foregoing, Applicant respectfully submits that even if Wisniewski et al. could properly be combined with Domiteaux, the resulting combination still would not teach or suggest the patentably distinguishable structure and mode of operation of Applicant's invention of amended claims 3 and 9-12. Specifically, such a combination would neither teach or suggest an educational toy comprising a plurality of objects, each including a plurality of object contact elements, wherein two or more object contact elements are connected to one another to form a contact pattern, and an identification member including a plurality of member contact elements configured such that at least two member contact elements come into electrical contact with at least two object contact elements. Indeed, neither of the Wisniewski et al. and Domiteaux references even remotely teaches or suggests a device in which an object is identified by means of an electrical current passing through that object. Accordingly, Applicant respectfully submits that its amended claims 3 and 9-12 patentably distinguish over the cited combination of references. Therefore, reconsideration and withdrawal of the rejection of claims 3 and 9-12, and allowance thereof, are respectfully solicited.

Inasmuch as dependent claims 2-8, 10-12 and 14 merely serve to further define the subject matter of independent claims 1, 9 and 13, respectively, which themselves

should be deemed allowable, reconsideration and withdrawal of the rejection of those claims based on the references cited by the Examiner, and allowance thereof, are respectfully requested.

Applicant respectfully submits that the application as a whole is now in a *prima facie* condition for allowance at this time. Therefore, reconsideration of the application, and allowance of claims 1-14, are respectfully solicited.

Should anything further be required, a telephone call to the undersigned at (312) 456-8400 is respectfully requested.

Respectfully submitted,

Dated: January 2, 2004

Howard E. Silverman
One of Attorneys for Applicant

CERTIFICATE OF MAILING

I hereby certify that this AMENDMENT AND COMMUNICATION is being deposited with the United States Postal Service as First Class Mail under 37 C.F.R. §1.8, postage prepaid, in an envelope addressed to: Box Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date set forth below.

Dated: January 2, 2004

Howard E. Silverman

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Hall effect

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The **Hall Effect** (discovered by Dr. Edwin Hall in 1879) states that when a magnetic field is applied perpendicular to a thin sheet of conducting or semiconducting material (the Hall element) through which current is flowing, a potential difference (voltage) will be created on opposite edges of the Hall element. The ratio of the voltage created to the amount of current is known as the *Hall resistance*, and is a characteristic of the material in the element.

The Hall effect comes about due to the nature of the current flow in the conductor. Current consists of many small charge-carrying "particles" (typically electrons) which see a force due to the magnetic field. Some of these charge elements end up forced to the sides of the conductors, where they create a pool of net charge. This is only notable in larger conductors where the separation between the two sides is large enough.

One important feature of the Hall effect is that it differentiates between positive charges moving in one direction and negative charges moving in the opposite. The Hall effect offered the first real proof that electric currents in metals are carried by moving electrons, not by protons. Interestingly enough, the Hall effect also showed that in some substances (especially semiconductors), it is more appropriate to think of the current as positive "holes" moving rather than negative electrons.

By measuring the Hall voltage across the element, one can determine the strength of the magnetic field applied. So called **Hall Effect Sensors** are readily available from a number of different manufacturers. The most common types are analog (or Linear) Hall effect sensors, which output a voltage that is proportional to the applied magnetic field, and digital Hall effect sensors, which are often used as magnetically controlled switches -- they turn on or off when the applied magnetic field reaches a certain level. These Hall effect switches generally consist of a Hall Effect Sensor, one or more logic gates and a transistor used to switch the electric current on or off.

Alternately, by applying a known magnetic field (typically from a permanent magnet) one can use the Hall voltage to instead measure the current through the element. This can be particularly useful as it allows one to measure the current in a conductor remotely through induction. This is widely used commercially in "live wire detectors", which allow you to quickly identify which wires are carrying current without plugging into them.

Links:

The Hall Effect

See also:

Quantum Hall effect
